

Patent Claims

1. A circuit arrangement having a power supply unit (I, II, III), a mains switch (S1) and a switching element (R1) with a control terminal (4), to which a control voltage (US) is coupled, the switching element (R1) bridging a first switching contact (1) of the mains switch (S1), **wherein** a load (L) is coupled to a control terminal (4) of the switching element (R1) for turning the load (L) off when opening the switching element (R1) via the control voltage (US).
2. The circuit arrangement as claimed in claim 1, **wherein** the circuit arrangement has a controller (UP), in particular a microprocessor, which is supplied with an operating voltage (U1) by the power supply unit (I), and which is coupled to the control terminal (4) of the switching element (R1) for control of the switching element (R1).
3. The circuit arrangement as claimed in claim 2, **wherein** the switching element (R1) is switched on and off by the controller (UP) via a switch (T1) arranged between an output voltage (U2) of the power supply unit (I) and the control terminal (4).
4. The circuit arrangement as claimed in claim 1, 2 or 3, **wherein** the load (L) is a fan, in particular, which is switched off in a delayed manner simultaneously when the circuit arrangement is switched off by means of the mains switch (S1), by virtue of the switching element (R1) being opened in a delayed manner.
5. The circuit arrangement as claimed in one of the preceding claims, **wherein** an inductance (LS) for a power factor correction is arranged between a mains terminal (NA) and the power supply unit (I, II, III), in particular upstream of a bridge rectifier (BR).

6. The circuit arrangement as claimed in one of the preceding claims, wherein a first power supply unit (I) has a lower output power and a second power supply unit (II) has a higher output power, the second power supply unit (II) being a switch mode power supply unit, in particular, and the circuit arrangement has a standby mode in which the second power supply unit (II) is turned off.

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7. The circuit arrangement as claimed in claim 6, wherein the load (L) is supplied with an operating voltage (U3) by the second power supply unit (II) via a decoupling element (D2) in the normal mode and is supplied with an operating voltage (U2) by the first power supply unit (I) via a switch (T1) in the standby mode.

8. The circuit arrangement as claimed in one of the preceding claims, wherein the first switching contact (1) of the mains switch (S1) is arranged between a mains terminal (NA) and a rectifier (BR) and a second switching contact (2) is used for turning off a supply or control voltage (U4) of a driver stage of the second power supply unit (II).

9. The circuit arrangement as claimed in one of the preceding claims 1 - 7, wherein the first switching contact (1) is used for turning off a supply or control voltage (U5) of a driver stage of the first power supply unit (I) and a second switching contact (2) is used for turning off a supply or control voltage (U4) of a driver stage of the second power supply unit (II).

10. The circuit arrangement as claimed in one of the preceding claims 2 - 9, wherein the controller (UP) comprises a timer program for opening the switching element (R1) and for turning off the load (L).

11. The circuit arrangement as claimed in one of the preceding claims, comprising further a mains switch detection circuit (MSD) coupled to the controller (UP) for sensing a switching off operation of the mains switch.
12. The circuit arrangement as claimed in one of the preceding claims, **wherein** the circuit arrangement is arranged in an image projection device, in particular a rear projection television set using a DLP (Digital Light Processing) unit, the image projection device having a das discharge lamp to be cooled which, after it has been switched off, has to be cooled for a defined time, i.e. approximately 1 - 2 minutes.